

UDC 615.1:378.016(477)

<https://doi.org/10.26641/2307-0404.2020.2.206336>

**T.D. Reva,  
I.V. Nizhenkovska,  
N.V. Stuchynska,  
O.M. Chkhalo**

## THE STATE AND PROSPECTS OF DEVELOPMENT OF NATIONAL HIGHER PHARMASEUTICAL EDUCATION

*Bogomolets National medical university  
T. Shevchenko boul., 13, Kyiv, 01601, Ukraine  
Національний медичний університет ім. О.О. Богомольця  
бул. Т. Шевченка, 13, Київ, 01601, Україна  
e-mail: revatd@ukr.net*

**Цитування:** *Медичні перспективи. 2020. Т. 25, № 2. С. 19-25*

**Cited:** *Medicni perspektivi. 2020;25(2):19-25*

**Key words:** *pharmaceutical education, master of pharmacy, model of professional pharmaceutical education, quality of education*

**Ключові слова:** *фармацевтична освіта, магістр фармації, модель професійної фармацевтичної освіти, якість освіти*

**Ключевые слова:** *фармацевтическое образование, магистр фармации, модель профессионального фармацевтического образования, качество образования*

**Abstract.** *The state and prospects of development of national higher pharmaceutical education. Reva T.D., Nizhenkovska I.V., Stuchynska N.V., Chkhalo O.M. The paper considers the materials of the Pharmacists Summit and International Pharmaceutical Congresses, in particular, the issue of achieving quality pharmaceutical education. It shows cause of the proper training process of pharmacy sector specialists in accordance with current state and requirements of the society and suggests a model of professional pharmaceutical education. According to the authors of the paper, the implementation of quality education in Ukraine calls for, first, professionally educated personnel in the pharmacy sector of healthcare; second, proper academic and university infrastructure for training future specialists within the system of higher pharmaceutical education; third, ensuring the high quality of higher pharmaceutical education on the basis of implementing the competence approach and taking into account international experience on pharmacy development. Increasing significance of the pharmacy branch in Ukraine is directly linked to the quality of training of pharmacy specialists, continuous improvement of the content of their education, implementation of new educational technologies, adapting higher pharmaceutical education to European standards. According to the authors, an important condition of ensuring effective professional training of future pharmacy specialists within the national system of higher pharmaceutical education is the following: first, considering public demand to the level of healthcare services, disease prevention; second, implementing the productive global experience on introducing customer service standards. The established prospects of the development of national higher pharmaceutical education include: 1) the adoption of ethical principles of training Masters of Pharmacy within the system of higher pharmaceutical education; 2) focus on European pharmacy standards which are based on high customer service standards; 3) improvement of the content of pharmacy specialist education taking into account the development of national pharmaceutical production; 4) ensuring the development of the clinical direction within the system of general pharmacist training.*

**Реферат.** *Состояние и перспективы развития национального высшего фармацевтического образования. Рева Т.Д., Ниженковская И.В., Стучинська Н.В., Чхало О.Н. В статье рассмотрены материалы съезда фармацевтов и международных конгрессов по фармации, а именно вопрос достижения качественного фармацевтического образования. Приведены соображения относительно процесса надлежащей подготовки специалиста фармацевтического сектора в соответствии с актуальными запросами государства и общества, предложена модель профессионального фармацевтического образования. По мнению авторов статьи, реализация качества образования в Украине требует, во-первых, профессионально образованных работников фармацевтического сектора отрасли здравоохранения; во-вторых, надлежащей академической и университетской инфраструктуры по подготовке будущих специалистов в системе высшего фармацевтического образования; в-третьих, обеспечения высокого качества высшего фармацевтического образования на основе внедрения компетентностного подхода и учета международного опыта развития фармации. Усиление значимости фармацевтической отрасли в Украине напрямую связано с качеством подготовки специалистов по фармации, непрерывным совершенствованием содержания их образования, введением новых образовательных технологий, адаптацией высшего фармацевтического образования к европейским стандартам. Важным условием, по мнению авторов, является обеспечение эффективности профессиональной подготовки будущих фармацевтов в отечественной системе высшего фармацевтического образования, что заключается в нижеследующем: во-первых,*

*учет запросов общества к уровню предоставления услуг в сфере здравоохранения, профилактики заболеваний; во-вторых, имплементация продуктивного мирового опыта по вопросам внедрения стандартов обслуживания клиентов. Определены перспективы развития национального высшего фармацевтического образования, а именно: 1) утверждение этических основ подготовки магистров фармации в системе высшего фармацевтического образования; 2) ориентированность на европейские стандарты фармации, основой которых являются высокие стандарты обслуживания клиентов; 3) совершенствование содержания образования фармацевтов с учетом развития отечественного фармацевтического производства; 4) обеспечение развития клинического направления в системе подготовки фармацевтов общего профиля.*

Modern challenges facing higher pharmaceutical education (HPE) in Ukraine raise the issue of studying the state and prospects of its development in order to develop a new strategy for training future Masters of Pharmacy in the field of public health. The need for such a strategy is dictated by the requirements of society and the state to train competitive, mobile, competent pharmacy professionals.

I. Zupanets, Z. Mnushko, V. Chernykh (training for the pharmaceutical industry), A. Kotvytska, I. Nizhenkovska (directions of pharmaceutical restructuring), I. Bulakh, Ya. Tsekhmister (accounting systems and basics of economics in pharmacy) and others made a significant contribution to the development of various aspects of the development of pharmaceutical education.

#### MATERIALS AND METHODS OF RESEARCH

Theoretically significant for our study are the materials of the VIII National Congress of Pharmacists of Ukraine (September 13-16, 2016, Kharkiv, Ukraine) [2], the 75th International Congress of the International Pharmaceutical Federation (FIP in English: Federation (Pharmaceutical and Pharmaceutical Sciences) (September 28, 2015, Germany) [10], 76th International FIP Congress on Pharmacy and Pharmaceutical Sciences (August 28 - September 1, 2016, Argentina) ) [4].

#### RESULTS AND DISCUSSION

First of all, let us outline the chronological boundaries of scientific research - from 1991 to the present. The foundation for the development of the pharmaceutical industry of independent Ukraine was laid before 1991, when the training of specialists in the country was carried out in the specialty "Pharmacy" only on the basis of three higher educational institutions: Kharkiv Pharmaceutical Institute and Pharmaceutical Faculties of Zaporizhia and Lviv Medical institutes. Since the end of the twentieth century National Academy of Pharmacy of Ukraine, as well as pharmaceutical faculties of medical universities and academies began to carry out professional training of specialists in such specialties as "Pharmacy", "Technology of pharmaceuticals", "Clinical pharmacy", "Technology of perfumery and cosmetics" for the pharmaceutical

industry in many cities of Ukraine (Vinnytsia, Dnipropetrovsk, Zaporizhia, Ivano-Frankivsk, Lviv, Odessa, Ternopil, Chernivtsi, Uzhhorod, etc.) [7]. In our opinion, it is expedient to study the state and prospects of development of the national HPE in the context of modern challenges facing the system of training specialists for the pharmaceutical sector of health care in Ukraine, including the need to increase public confidence in domestic pharmacy, which is currently experiencing a reputation crisis.

Since the modernity of pharmacy is closely interacted with its past, namely with the history of mankind, the development of civilizational processes, we note that the leading factor in the development of this area was the value approach to a man, his/her health. In all historical times, pharmacy has had a mission of mercy and compassion for others, contributed to the establishment of humanistic values and ideals in the field of human health. The fact that the first pharmacies appeared in Europe in 1100 A.D. in monasteries, historically, in the minds of people formed attitude to pharmacies as a place where they go with hope, faith, hope to receive support and help.

Currently, the social, psychological, intellectual, financial, professional, marketing, and information interests of a large number of society are concentrated around pharmacies. Therefore, pharmacists are the link that should ensure positive social change in the assessment of the role and place of pharmacy in the health care system of the nation, while not losing its purpose – to be the bearer of the values of health, philanthropy.

An important milestone in establishing a modern understanding of the purpose of the HPE was the international approval of the concept of "Oath / Promise of a Pharmacist", presented by FIP Secretary General Luke Besançon at the 75th FIP International Congress on Pharmacy and Pharmaceutical Sciences (September 28, 2015, Germany) [10]. This oath, according to the participants of the meeting, must strengthen the responsibility of pharmaceutical workers and their quality assistance to the population. The issue of achieving quality pharmaceutical education was also considered on the agenda of the 76th FIP International Congress on Pharmacy and Pharmaceutical Sciences (August 28

– September 1, 2016, Argentina) [4]. It should be noted that the self-governing professional pharmaceutical organization CO “All-Ukrainian Chamber of Pharmacy (AUCP), the only official representative of Ukraine in the FIP community took part in this event on behalf of Ukraine.

Given the current global trends in the development of pharmacy, HPE in Ukraine positions itself as an institution, which, on the one hand, is tasked with training highly qualified personnel for the pharmaceutical sector of health care of the country, and on the other – it ensures the development of personality, acquisition of qualities that will help maintain public confidence in pharmacists as professionals who informally and caringly listen to the visitor, provide valuable advice, competently consult on problems painful for the patient.

We believe that a modern specialist with higher pharmaceutical education should be ready to advise visitors who have valid information, as well as those who use altered or false sources which may harm their health by self-medication, this determines the importance of responsible and balanced state policy of development of the pharmaceutical sector of healthcare of Ukraine. The assertion of the priority of citizens' health among the national values which determine the state policy of Ukraine in the field of health care takes into account the following groups of factors: legal; socio-economic; medical; educational and upbringing; culturological; environmental [1]. An important condition for providing a set of measures for the health of Ukrainians is to take into account their requests for the level of services in this area, disease prevention and improving the efficiency of the health care system, which should be considered when designing training of future masters of pharmacy in the HPE system of Ukraine.

The development of the pharmaceutical sector of the healthcare sector in Ukraine is an indispensable condition for preserving the health of the Ukrainian people, a guarantee of well-being and social protection of the population. More than 400 thousand specialists work in the segments of domestic pharmaceutical education, science, wholesale and retail trade, pharmaceutical production and quality control of medicines and in professional pharmaceutical publications [5].

The analysis of the information presented by the participants of the VIII National Congress of Pharmacists of Ukraine (hereinafter – the Congress), which took place on September 13-16, 2016 in Kharkiv (Ukraine), allowed to identify the main achievements and problems of the pharmaceutical sector of Ukraine in a comparative context with the

foreign practice of this industry. Among the successes the following was named:

1. Ukraine has a strong pharmaceutical industry that meets the standards of good manufacturing practice: according to market research "PharmXplorer"/ "Pharmstandard" of the company "Proxima Research", at the present stage the share of sold packages of Ukrainian drugs in the total market is about 80%, and in monetary terms – about 40%, while the weighted average cost of one package of domestic drug is almost five times lower than foreign.

2. In Ukraine, 112 enterprises have a state license for the production of medicines (drugs), currently more than 12 thousand names of drugs are produced in the country, taking into account the drug forms, dosage and packaging number.

3. About 400 thousand people are involved in the pharmaceutical sector of Ukraine; at the beginning of 2018-2019 there are almost 32,000 students at the faculties of the pharmaceutical profile, whose knowledge is tested according to the system of licensing exams "Step": students take exams in the mode of testing "USQE", "Step-1", "Step-2". "Step-3", which ensures compliance with European standards of quality assurance of pharmaceutical education and objectivity of the exam [5].

The generalization of the materials of the Congress [5] made it possible to find out that unification of among the current efforts of the professional community to promote the process of continuing education of pharmaceutical workers to protect the legitimate social, creative, economic and other common interests, rights and freedoms of professionals and consumers of pharmaceutical products and services, including patients, the development of professional self-government in Ukraine are challenges that require an adequate response from government agencies, educational institutions, scientists, health authorities, pharmaceutical companies. The Congress identified strategic objectives that can be the basis for improving the effectiveness of training future masters of pharmacy in the domestic HPE system, namely:

1. Creation of the National Policy on medicinal products – a document that summarizes, formulates and specifies plans of development of pharmaceutical sector, in particular with such basic elements as the availability of medicines, financing of the system of supply of medicines, their supply, regulation and quality assurance, as well as promotion in the market of services.

2. Creation of the National list of basic medicinal products taking into account the recommendations of the WHO, which will present only medicinal products with proven efficacy and those that are included in the treatment protocols of developed countries.

3. Introduction of reimbursement (reimbursement by the state of the part of cost of medicines) for medicinal products that will be included in the National list, using reference prices.

4. Introduction of reference prices for medicinal products to be included in the National list [9].

An important step in understanding the current problems of the HPE of Ukraine was that on September 28, 2015 at a meeting of members of the FIP Council during the 75th World Congress of Pharmacy and Pharmaceutical Sciences, CO "All-Ukrainian Chamber of Pharmacy" (hereinafter - CO "HPE" ) was granted the status of an organizational member. Thus, the CO HPE was given the authority to carry out an explanatory work and be the voice of the international pharmaceutical community in Ukraine [3]. We recognize that a weak link in ensuring the effective development of the domestic pharmaceutical sector is the pharmacy network, which suffers from a lack of perfect legal regulation of the procedure for approving the criteria for opening pharmacies and a well-trained specialist in the pharmaceutical sector, which affects public confidence to the quality of services of the pharmacy network and its employees. Therefore, the training of a specialist in the pharmaceutical sector should be carried out in accordance with modern international standards, and in the case of correspondence form of the HPE, only persons with a secondary pharmaceutical education should be allowed to receive it.

Our considerations regarding the process of proper training of a pharmaceutical specialist in accordance with the current requests of the state and society should include a change in the mindset of the beneficiaries. Yes, the educator should be concerned about the answer to the question: "What specialist does a modern HPE train?" It is important for the pharmacist to understand the extent of his responsibility for the pharmaceutical care provided to the patient: when an error due to unpreparedness can lead to a fatal outcome for the patient. For the employer, the important question, to which he must find the answer is: "What is his task: to have a pharmacy – a health care facility, or an institution whose purpose is a successful business?" [6].

It is important for the pharmacy of Ukraine to listen to the conclusions of FIP members: the

improvement of global health is impossible without professionally educated personnel of the health care system, appropriate academic infrastructure and high quality and competence of education. That is why since 2012, the FIP Education Initiative (FIPEd) has become a global platform for the exchange and training of all professional leaders [4]. Thus, the analysis of FIPEd goals allows us to establish that among them it is important to create a Model of Professional Pharmaceutical Education (FIP-WHO-UNESCO Pharmacy Education Taskforce) [7], which can be visually represented in the form of a diagram (Fig.).

The concept of development of the pharmaceutical sector of the healthcare of Ukraine for 2011–2020 [8] and the conclusions of the participants of the Congress FIP-2016 [4] focus on solving current problems of training future masters of pharmacy in higher pharmaceutical education in Ukraine by:

1. Continuation of the European integration direction of development of higher medical and pharmaceutical education.

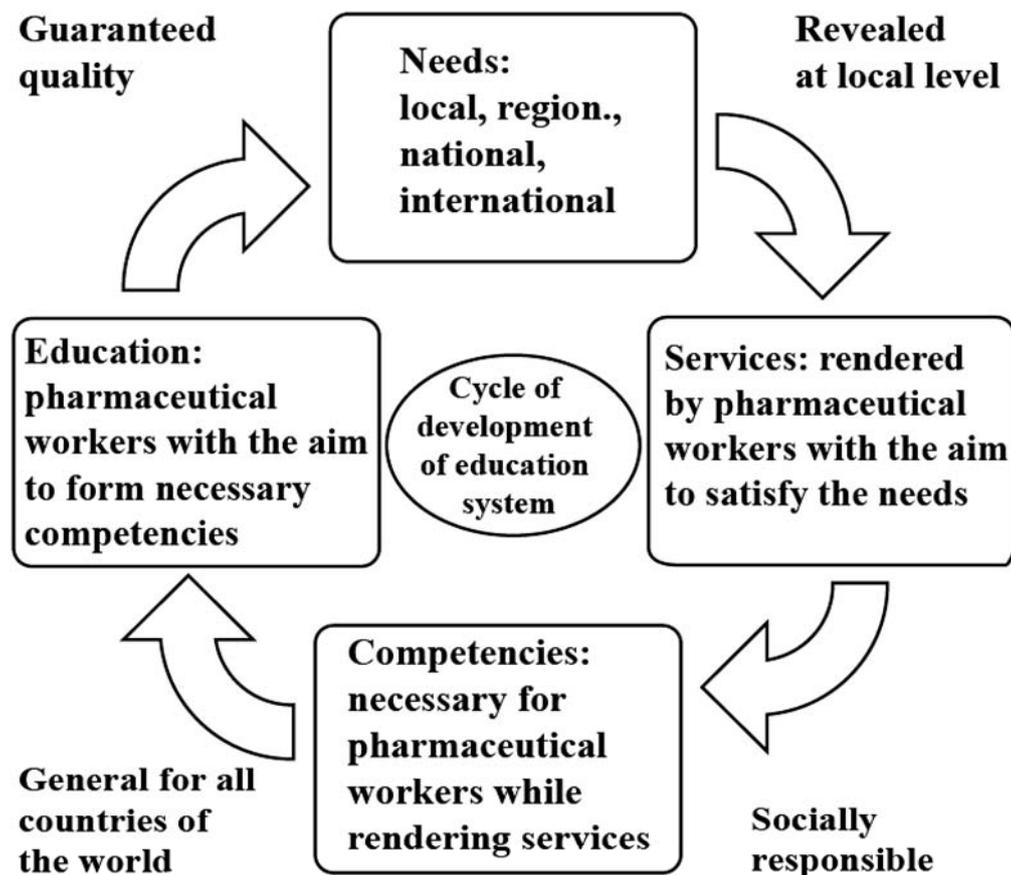
2. Application of experience in the implementation of the European Credit Transfer and Accumulation System (ECTS) in order to implement a pan-European system of quality assurance in education.

In our opinion, the implementation of these tasks in Ukraine requires, first, professionally educated employees of the pharmaceutical sector of the healthcare system; second, the appropriate academic and university infrastructure for the training of future professionals in the HPE system; third, ensuring high quality of the HPE based on the introduction of a competency-based approach and taking into account international experience in the development of pharmacy. We believe that HPE in Ukraine, in accordance with international standards, must meet the priority of the XXI century: to form respect for the profession in society. Strengthening the importance of the pharmaceutical industry in Ukraine is directly related to the quality of training of pharmacy specialists, continuous improvement of the content of their education, introduction of new educational technologies, adaptation of HPE to European standards.

As FIPEd aims to improve educational policy and stimulate innovations that will promote pharmacy and pharmaceutical education at the international and national levels, the key vectors of FIPEd are identified – development of science and practice, improvement of pharmaceutical care, promotion of education in this field. It should be

noted that the 76th FIP Congress (August 28, 2016) approved the FIPEd initiative to hold the First World Conference on Pharmacy and Pharmaceutical Education in November 2016 in Nanjing (China), where practitioners, scientists, educators, repre-

sentatives of regulatory bodies, professional self-government singled out a common vision, concept of development and regulations on pharmaceutical education and pharmaceutical human resources [4].



#### Model of professional pharmaceutical education (FIP-WHO-UNESCO Pharmacy Education Taskforce)

Analysis of pharmaceutical practice, materials and teaching experience at the Faculty of Pharmacy of the Bogomolets National Medical University (Kyiv) shows that among the current problems of training future masters of pharmacy in Ukraine is the establishment of partnerships between components of the pharmaceutical industry – education, science, industry, pharmacy network, institutions for quality control of pharmaceutical supply. We are convinced that such a partnership will be an important step towards developing a strategy and tactics for achieving the quality of training of masters of pharmacy in the HPE system of Ukraine, taking into account the current challenges facing the pharmaceutical sector of our country.

In our opinion, an important condition for ensuring the effectiveness of professional training of future pharmacists in the domestic system of HPE is, first, taking into account the demands of society to the level of services in health care, disease prevention, and, second, implementation of world experience, in particular the countries of the European Union, on the implementation of customer service standards, increasing social responsibility for the quality of health care services, compliance with the ethics of pharmacists in marketing and communication with people in need of advice assistance of pharmacy network specialists.

The development of the national HPE is accompanied by the urgent requirements of citizens,

society and the state to train competitive pharmacists in the labor market, provide affordable and effective pharmacotherapy and disease prevention.

### CONCLUSIONS

Summarizing the above, we note that the prospects for the development of the national HPE are to solve urgent problems of training future specialists in the pharmaceutical sector of health care in Ukraine, among which the following are important:

1. Approval of ethical principles of training masters of pharmacy in the VFO system, the basis of which is the observance of ethics of a pharmacist in professional activities, communicative interaction with people who need advice on the use of drugs.

2. Focus on European standards of pharmacy, which are based on high standards of customer service, increasing social responsibility to society for the quality of public health services.

3. Improving the content of education of pharmacists taking into account the development of domestic pharmaceutical production of medicines and medical equipment to overcome dependence of the domestic market of medicines from the import.

4. Ensuring the development of the clinical direction in the system of training general pharmacists to improve the quality of drug therapy and pharmaceutical care of GPP, which is especially in demand in the introduction of insurance medicine.

The further research will be devoted to the study of current trends in the development of the national pharmaceutical industry related to ensuring the quality of training of highly qualified personnel in this area, continuous improvement of the content of HPE, the introduction of new technologies and forms, adaptation of the HPE to European standards.

Conflict of interest. The authors declare no conflict of interest.

## REFERENCES

1. Bobryts'ka VI. [Youth health formation: actualization of the world retrospective in the context of modern university education: monograph]. Poltava: FOP Rybalka DL. 2010;23. Ukrainian.

2. [VIII National Congress of Pharmacists of Ukraine. 2016.09.13–16. Kharkiv. Ukrainian]. Available from:

<http://www.isc.kharkov.com/uk/activity/news/2016-09-15-14-42-17>.

doi: <https://doi.org/10.15407/ugz2016.01.009>

3. Klimov O. [The role of the pharmaceutical specialist in society and in the health care system must be identified]. Available from:

<http://www.apteka.ua/article/361967>

4. [Congress FIP-2016. World Pharmacist's Day in the International Pharmaceutical Family]. Available from:

<http://www.apteka.ua/article/384828>

5. [The Past, Present, Prospects. According to the materials of the VIII National Congress of Pharmacists of Ukraine]. Available from:

<http://www.apteka.ua/article/385701>

6. [Towards the VIII National Congress of Pharmacists of Ukraine. All-Ukrainian Pharmacy Chamber: Good Pharmacy Practice – The Guarantee and Gold

Standard of Effective Pharmaceutical Assistance to the Patient]. Apteka. 2016;32. Available from: <http://www.apteka.ua/article/381791>

7. Nizhenkovs'ka IV, Reva TD, Butkevich TA. [Trends, problems of pharmaceutical education and their solution]. Program of the VIII National Pharmacists Congress of Ukraine, 2016 Septem. 13-16; Kharkiv; 2016. p. 34. Ukrainian.

8. [Order of the Ministry of Health of Ukraine. The concept of development of the pharmaceutical sector of the healthcare sector of Ukraine for 2011-2020]. 2013 March 27. No. 242. Available from: [www.apteka.ua/article/225241](http://www.apteka.ua/article/225241)

9. Reva TD. [Actual problems of training specialists in the pharmaceutical sector of health care in Ukraine]. Humanitarny Visnyk Pereyaslav-Hmelnytskogo Derzhavnogo Pedagogichnogo Universytetu imeni Hryhoriya Skovorody. Gnozis. Kyiv. 2016;37:358-66. Ukrainian.

10. [75th International Congress of the International Pharmaceutical Federation (IPF) in Pharmacy and Pharmaceutical Sciences. 2015]. Russian. Available from: <http://www.mospharma.org/ru/novosti-fip/75-mezhdunarodnyy-kongress/>

## СПИСОК ЛІТЕРАТУРИ

1. Бобрицька В. І. Формування здоров'я молоді: актуалізація світового ретродосвіду в умовах сучасної університетської освіти: монографія. Полтава: ФОП Рибалка Д. Л., 2010. с. 23.

2. VIII Національний з'їзд фармацевтів України (Харків, 13-16 вер. 2016 р.): електрон. ресурс.

URL: <http://www.isc.kharkov.com/uk/activity/news/2016-09-15-14-42-17> (дата звернення: 16.10.2016). DOI: <https://doi.org/10.15407/ugz2016.01.009>

3. Клімов О. Необхідно визначити роль фармацевтичного спеціаліста в суспільстві та системі охорони здоров'я: електрон. ресурс.

URL: <http://www.apteka.ua/article/361967> (дата звернення 12.04.2016).

4. Конгрес FIP-2016. Всесвітній день фармацевта у міжнародній фармацевтичній сім'ї: електрон. ресурс. URL: <http://www.apteka.ua/article/384828> (дата звернення 12.04.2016).

5. Минуле, сучасність, перспективи: матеріал VIII Національного з'їду фармацевтів України. URL: <http://www.apteka.ua/article/385701>

6. Назустріч VIII Національному з'їду фармацевтів України. Всеукраїнська фармацевтична палата: належна аптечна практика – запорука і золотий стандарт ефективної фармацевтичної допомоги пацієнтові: електрон. ресурс. *Аптека*. 22 серп. 2016. (№ 32). с. 1053.

URL: <http://www.apteka.ua/article/381791> (дата звернення 15.05.2017).

7. Ніженковська І. В., Рева Т. Д., Буткевич Т. А. Тренди, проблеми фармацевтичної освіти та їх ви-

рішення: програма VIII Нац. з'їду фармацевтів України (м. Харків 13-26 вер.). С. 34.

8. Концепції розвитку фармацевтичного сектору галузі охорони здоров'я України на 2011-2020 рр.: (у ред. наказу МОЗ України від 27.03.2013 р. № 242); затв. наказом МОЗ № 769 від 13.09.2010 р.: електрон. ресурс. URL: [http://moz.gov.ua/ua/portal/dn\\_20100913\\_769.html](http://moz.gov.ua/ua/portal/dn_20100913_769.html) (дата звернення: 12.04.2016).

9. Рева Т.Д. Актуальні проблеми підготовки фахівців фармацевтичного сектору галузі охорони здоров'я України. *Гуманітарний вісник ДВНЗ «Переяслав-Хмельницький педагогічний університет ім. Григорія Сковороди»*. Додаток 1. Вип. 37. 2016. Т. 69. № 1. С. 262, 358-366.

10. 75-й Міжнародний конгрес Міжнародної Фармацевтичної Федерації (FIP) з фармації і фармацевтичних наук, 2015 р.: електрон. ресурс. URL: <http://www.mospharma.org/ru/novosti-fip/75-mezhdunarodnyu-kongress> (дата звернення 11.09.2016).

The article was received  
2019.10.01

